TABLE 3.1-6 Estimated Radiation Doses to Members of the General Public and Cylinder Yard Workers at the Paducah Gaseous Diffusion Plant

Receptor	Radiation Source	Dose to Individual (mrem/yr)
Member of the general public (MEI)[a]	Routine site operations	
	Airborne radionuclides	0.0088[b]
	Waterborne radionuclides	0.032[c]
	Direct gamma radiation	0.17[d]
	Ingestion of drinking water	0.00055[e]
	Ingestion of wildlife	1.7[f]
Cylinder yard worker	External radiation	170–427[g]
Member of the public or worker	Natural background radiation around the Paducah site	95[h]
DOE worker limit		2,000[i]

[a] The MEI is assumed to reside at an off-site location that would yield the largest dose. An average person would receive a radiation dose much less than the values shown in this table.

[b] Radiation doses from airborne releases were estimated by using an air dispersion model and took into account exposure from external radiation, inhalation, and ingestion of foodstuffs. The MEI was assumed to be located approximately 4,003 ft (1,220 m) north of the plant site (DOE 2001b).

[c] Radiation doses would result from incidental ingestion of contaminated sediment in Little Bayou Creek every other day during the hunting season (DOE 2001b).

[d] Radiation exposure would result from frequently traveling along Dykes Road in the vicinity of the cylinder storage yards (DOE 2001b).

[e] The radiation dose was estimated on the basis of the assumption that the MEI consumes water supplied by the public water system at Cairo, Illinois, the closest water supply system that uses water downstream of Paducah GDP effluents (DOE 2001b).

[f] Radiation doses could result from ingestion of the edible portion of two average-weight deer containing the maximum detected concentrations of radionuclides (DOE 2001b).

[g] Range of annual dose in 2001 (Hicks 2002a).

[h] Average dose from natural background radiation is 105 mR/yr (DOE 2001b), which can be converted to 95 mrem/yr.

[i] DOE administrative procedures limit DOE workers to 2,000 mrem/yr (DOE 1992), whereas the regulatory dose limit for radiation workers is 5,000 mrem/yr (10 CFR Part 835).